



**US Army Corps
of Engineers®**
Buffalo District

REVIEW PLAN

Blanchard River Watershed, Ohio Feasibility Report

Flood Risk Management and Ecosystem Restoration

U.S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, NY 14207

MSC Approval Date: Pending.

Last Revision Date: None – This is the First Version.

REVIEW PLAN
Blanchard River Watershed, Ohio
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References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010.
- (2) EC 1105-2-412 Assuring Quality of Planning Models, 31 March 2010
- (3) Engineering Regulation (ER) 1110-2-12, Quality Management, 30 Sep 2006.
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007.
- (5) The Project Management Plan for the Blanchard River Study dated April 2011 (This Review Plan is included as Appendix F of the PMP).
- (6) LRD Regional Business Process Manual - QC/QA Procedures for Study/Design Phase

Requirements. This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The lead RMO for the peer review effort described in this Review Plan is the USACE Flood Risk Management Center of Expertise (FRM-PCX) located in San Francisco, California.

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to conduct ATR of cost estimates, construction schedules and contingencies. Since this study is multipurpose and will include environmental restoration considerations the FRM-PCX will coordinate review efforts with the National Ecosystem Planning Center of Expertise to insure that review teams with appropriate expertise are assembled. Finally, because there is the potential for risk to life safety, the RMO will coordinate with the USACE Risk Management Center.

3. STUDY INFORMATION

Decision Document. The purpose of the study is to investigate alternative measures and plans for providing flood risk management and ecosystem restoration in the Blanchard River Watershed; to determine the economic, social and environmental effects of alternative plans; to produce a Feasibility Study Report; and, to possibly recommend a project for authorization by the Congress. The decision document produced will be a draft and final Feasibility Study Report and an integrated draft and final Environmental Impact Statement. Assuming a project(s) can be developed that meets the Federal Interest in Flood Risk Management (FRM)

and/or Ecosystem Restoration (ER), and a non-Federal sponsor is found willing and capable of sponsoring the project, the Feasibility Report along with accompanying documents will be ultimately approved by the Chief of Engineers and transmitted to Congress for Project Authorization. The decision document will be titled “Blanchard River Watershed, Ohio – Feasibility Study of Flood Risk Management and Ecosystem Restoration Measures”.

Study/Project Description. The feasibility study is designed to address the following:

- a. **Study Area:** The study area is defined as the watershed boundaries of the Blanchard River within Putnam, Hancock, Seneca, Allen, Hardin and Wyandot Counties in the State of Ohio. The study area will encompass the entire Blanchard River Watershed including upstream areas, which contribute to flooding, and downstream areas to the Auglaize River. The Blanchard River Watershed is illustrated on Figure 1.
- b. **Study Authorization:** This Blanchard River Watershed study is being conducted under the general authority provided in Section 441 of the Water Resources Development Act (WRDA) of 1999, as amended.

SEC. 441. WESTERN LAKE ERIE BASIN, OHIO, INDIANA, AND MICHIGAN.

(a) **IN GENERAL.**—The Secretary shall conduct a study to develop measures to improve flood control, navigation, water quality, recreation, and fish and wildlife habitat in a comprehensive manner in the western Lake Erie basin, Ohio, Indiana, and Michigan, including watersheds of the Maumee, Ottawa, and Portage Rivers.

(b) **COOPERATION.**—In carrying out the study, the Secretary shall—

(1) cooperate with interested Federal, State, and local agencies and nongovernmental organizations; and

(2) consider all relevant programs of the agencies.

(c) **REPORT.**—Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to Congress a report on the results of the study, including findings and recommendations.

- c. **Study Background:** The Blanchard River has flooded numerous times in its history causing significant damages in the City of Findlay and Village of Ottawa. Serious flooding in Findlay was reported in Findlay newspaper articles dating back to January 1846. Other serious floods occurred in Findlay in 1881, 1883, 1888, 1904, 1913, 1927, 1950, 1959, 1981, 1990, 1997, 2006, 2007 and 2008. According to the U.S. Geological Survey (USGS) stream gage data at Findlay, the Blanchard River has reached flood stage at least once in 15 of the last 20 years. More recently, from December 2006 to March 2008, Findlay experienced four flooding events that were considered larger than the 10 percent annual chance flood; two of the four floods were within the top five floods ever recorded in Findlay (Source: National Weather Service).

- d. Ecosystem Restoration Considerations:** Historically, significant portions of the Blanchard River Watershed were within the margins of the impregnable Black Swamp of northwest Ohio. The Black Swamp, formed at the end of the Wisconsin glaciations, was one of the largest wetland areas within the United States until it was significantly drained in the late 1800's. The original Black Swamp, 40 miles wide and 120 miles long extended into Indiana and was comprised of extensive marshes and swamps with interspersed high ground. Areas that were permanently inundated were dominated by deciduous swamp forests. Drier areas were dominated by oak and hickory. Large areas of non-forested wetlands including marshes and wet prairies also existed. The area was lightly settled until the 1850's when the state of Ohio began organized efforts to drain the swamp for improved roadways and agricultural purposes. By 1900, the swamp was largely drained by installation of clay tiles and converted to very fertile agricultural land with associated rural settlements. Today only small pockets of the original Black Swamp remain.
- e. Multipurpose Study Considerations:** This study, although primarily concerned with flood risk management efforts for the communities of Findlay and Ottawa, will also investigate flooding concerns in other portions of the watershed. In addition, numerous opportunities may exist to restore historical wetlands in the watershed and will also be investigated in the study. In so far as possible, flood risk management and environmental restoration measures will be combined into alternative plans for evaluation and consideration in the study.
- f. Types of Measures/Alternatives to Be Considered in the Study:** Measures to be investigated for flood risk management include upstream Impoundments, levees, floodwalls, diversion channels, channelization and non-structural flood proofing actions. For environmental restoration purposes, the primary measures to be considered would be converting farmlands and unused areas back into wetlands.
- g. Range of Cost for a Plan:** To date, very preliminary cost-estimates have been prepared for levee, flood wall and diversion plans for Findlay, Ohio (> \$100,000,000); and Ottawa, Ohio (>\$40,000,000).
- h. Non-Federal Sponsor:** The non-Federal sponsor for this study is Hancock County, Ohio.
- i. Vertical Team Implementation Guidance:** To date, no vertical team implementation guidance has been developed for this Blanchard River Feasibility Study. HQUSACE provided overall general guidance for the Section 441 Authority in a CECW-PM Memorandum dated December 9, 2003 during review and approval of the Expanded Reconnaissance Study for the Western Lake Erie Basin, Ohio, Indiana and Michigan Section 905(b) Reconnaissance

Analysis. That guidance is included in Appendix N of the Blanchard River Project Management Plan.

Feasibility Study Components – The following describes the primary components of the feasibility study and the feasibility study report.

- a. Complete refinement of Blanchard River watershed rainfall-runoff model as necessary to determine discharge-frequency runoff hydrographs. The model will be used to develop alternative flood mitigation plans such as levees, floodwalls, floodplain restoration, riparian restoration, wetland restoration, and rural drainage system retrofits.
- b. Development of alternative measures and plans for watershed restoration including habitat improvements which may benefit flood risk reduction within the Blanchard Watershed. As part of the study, any alternative measures and plans developed shall verify that future improvements will not adversely affect flooding areas.
- c. Preparation of a General Investigation Feasibility Report consistent with the guidelines contained in ER 1105-2-100 the Planning Guidance Notebook and other USACE guidance.
- d. Development of documentation to comply with the National Environmental Policy Act (NEPA) of 1969. This documentation could take the form of an Environmental Assessment and Finding of No Significant Impact (NSI) or a draft and final Environmental Impact Statement (EIS).
- e. Coordination of the study with local, state, and Federal agencies and with the public and other interested parties concerning the findings of the feasibility study.
- f. Identification of a National Economic Development (NED) plan and National Ecosystem Restoration (NER) plan.
- g. Development of a detailed list of feasible flood damage reduction and watershed restoration projects. For each of the projects conceptual schedules and cost estimates will be developed.

Factors Affecting the Scope and Level of Review. This section outlines the factors necessary to determine the appropriate scope and level of review for the decision document. The following factors have been considered:

- a. **Challenges** – The study is investigating flood risk management and ecosystem restoration measures in the entire Blanchard River Watershed, an area of about 771 square miles. The very size of the study area creates a significant challenge particularly the aspect of developing a hydraulic model for the watershed.

- b. The Village of Ottawa is located about 30 miles downstream of the City of Findlay and both are within the Blanchard River Watershed. As such, any proposed improvements recommended as part of a project for Findlay must be carefully reviewed to ensure there are no adverse effects to downstream areas particularly in Ottawa.
- c. Much of the watershed outside of the communities of Findlay and Ottawa are high quality productive farmland. The taking of significant amounts of any farm lands out of production for flood control or ecosystem purposes may meet resistance from local farm bureaus and farmers.
- d. The Blanchard River watershed is extremely flat with little topography throughout the watershed. This geographic factor will severely limit the possibility and effectiveness of any potential flood water storage reservoirs in the basin.
- e. The immediate downtowns of Findlay and Ottawa are densely developed in most cases right up to the creek banks. This factor eliminates any major stream channelization through the communities and makes placement of levees difficult without significant land and property takings. Flood walls although effective in such situations can be very expensive to construct.

Project Risks – A detailed Risk Management Analysis for this study/project has been produced as Appendix D of the Project Management Plan (PMP). The major risks are briefly outlined below.

- a. Hazardous, Toxic and Radiological Wastes (HTRW) – HTRW sites are known to exist in the City of Findlay, however systematic surveys of locations and degree of contamination will not be known until the non-Federal sponsor has completed appropriate site investigations for HTRW. Such HTRW sites could seriously affect study schedules, the locating of any particular project alternatives and ultimately the costs and economic efficiency of an alternatives plan.
- b. Cultural Resources and Tribal Consultations – The Blanchard River Watershed was historically inhabited by Native Americans and is known to have many sites of cultural and Native American significance. Cultural Resources surveys and Native American coordination will be extensive and likely impact possible alternatives and the study schedule.
- c. Economics - Due to the magnitude of the preliminary cost estimates, there is an inherent risk that there may not be sufficient benefits to justify costs for the costs. Subsequently, if the benefit to cost ratio (BCR) is less than one, the study would be terminated with the preparation of a negative report.
- d. Real Estate – A number of properties have been acquired and demolished in Findlay and Ottawa by local interest using FEMA Flood Hazard Mitigation Grants. Such acquisitions,

although removing the affected structures from the flood plain also limit the footprint of potential levees and floodwalls.

Significance of Economic, Environmental and/or Social Effects to the Nation – The Blanchard River Watershed is largely a rural sparsely populated area and no major significant effects to the nation would be expected as the result of any project. The exception may be the City of Findlay which is home headquarters to at least two major corporations (Marathon Oil and Cooper Tire) and numerous smaller corporations. Many of these corporations and small businesses have indicated the need for the provision of flood mitigation for them to remain viable in northwest Ohio and the city of Findlay.

Significance of Threat to Human Life/Safety Assurance – Flooding of the Blanchard River, particularly in Findlay (pop. About 35,000) and Ottawa (pop. About 5,000) is currently very predictable and due to the flat topography occurs gradually without significant threat to loss of life. Structure and content damages can be significant with over 2,200 structures inundated and over \$10,000,000 of damages occurring in Findlay during the August 2007 flood. Since that flood, both Findlay and Ottawa have installed modern state of the art flood warning systems and implemented evacuation procedures to further reduce threats to life and property.

Under current conditions, residents are generally removed from the most threatened flood zones before dangerous flooding occurs, minimizing the threat to life. Business owners and residents generally have some time to sand bag doors and ground levels windows minimizing flood intrusion and time remove and or elevate valuable property. In all likelihood, any flood risk management project that might be recommended for Findlay and Ottawa will involve the construction of floodwalls, levees and/or diversion channels. Such structures are not fail safe and at times may give a false sense of security to local residents during times of floods. Catastrophic failure of a levee or flood could potentially cause widespread damage and be a significant life and safety threat to local residents. In addition, dependent upon the level of protection provided, residual flooding may occur in certain areas. Due to these inherent risks and the potential for a project(s) over \$45,000,000 in cost, the study will undergo a Type I Independent External Peer Review (IEPR) including the consideration of appropriate Safety Assurance Review (SAR) factors.

Assessment of District Chief of Engineering Concern Life and Safety – The Buffalo District Chief of Technical Services Division (a.k.a. Chief of Engineering) has assessed the potential life and safety issues relative to any potential FRM project in the Blanchard River Watershed (refer to discussion above) and has concluded that a Type I IEPR with consideration of SAR Review Factors is appropriate during the Planning stages of this study. In addition, based on current information, he has determined that a Type II IEPR and Safety Assurance Review would be appropriate and should be conducted during the design and construction phases of the project.

Significance of Interagency Interest – Investigations conducted under the Section 205 authority have shown that any projects that might be recommended will have significant Federal (USFWS, USGS, NRCS) and non-Federal (Ohio Department of Natural Resources, Ohio Environmental Protection Agency, State Historic Preservation Officer) interagency interest. These interests result from the likely presence of endangered species (Indiana Bat, several mussels, etc.); the likely presence of cultural resources sites (Native American encampments); and the likely presence of HTRW sites with the areas that could be affected by any project(s).

Potential for Controversy – To date, no significant controversies have been identified related to the provision of flood risk mitigation measures in the watershed. As previously discussed, there could be some resistance from local farm bureaus and farmers if any action would require the use of large areas of farmland or if the provision of flood mitigation would result in any significant new tax burden on farmers.

Overall, this study will involve significant community involvement through the Northwest Ohio Flood Mitigation Partnership (NWOFP) and local municipalities. It is not expected to be a highly controversial project as the NWOFP is actively engaged in positive public relation campaigns on this project and the community desires to reduce the flood risk and property damage.

Will the Project Report Contain Influential Scientific Information or be a Highly Influential Scientific Assessment? – No. It is expected that the project report will be a more or less standard feasibility study report using generally accepted procedures for analysis. This conclusion is reached based on the well understood geology, topography and human use of much of the watershed. Topographically, much of the basin is extremely flat, the entire area being inundated and leveled by recessions of the Pleistocene ice sheets and the formation of glacial Lake Maumee. Stream slopes from Findlay to Ottawa range from 1.8 to 0.5 feet per mile. Soils range from nearly level/very poorly drained to gently sloped/poorly drained types. Since 1900, significant drainage improvements for agriculture have been made throughout much of the watershed. Outside of the communities of Findlay (pop. About 35,000) and Ottawa (pop. About 5,000) and several smaller communities, the entire watershed is predominately used for agricultural purposes. No unusual scientific assessments or other investigations are currently proposed or expected to be needed to complete this study.

Will the Information in the Decision Document (Feasibility Study Report) be Based on Novel Methods, Involve the Use of Innovative Materials or Techniques, Present Complex Challenges for Interpretation, Contain Precedent-Setting Methods or Models, or Present Conclusions

that are Likely to Change Prevailing Practices? - No. It is expected that the project report will be a more or less standard feasibility study report using generally accepted procedures for analysis. Current study efforts are focused on investigation various measures for flood damage reduction (e.g. levees, diversion channels, flood proofing, flood walls) and ecosystem restoration (e.g. wetland restoration). Although a number of Planning Models will need to be certified for use in this study (QHEI, ORAM), none are unusual or is it expected that their use in this study will be precedent setting. To date, engineering efforts related to the design and potential construction of levees, floodwalls and other structures has followed all applicable Corps of Engineers guidance (e.g. ER 1110-2-1150 Engineering and Design for Civil Works Projects).

Will the Proposed Project Design Require Redundancy, Resiliency and/or Robustness in the Context of Appendix E of EC 1165-2-209? – Appendix E of EC 1165-2-209 generally relates to the design and construction phases of flood risk management projects and specifies that Type II IEPR, Safety Assurance Reviews will be conducted where potential hazards pose a significant threat to human life. Currently, the Blanchard River study is in too early a study phase to make any definitive conclusions of the need for a Type II IEPR. If, however, flood risk management project(s), likely involving the construction of floodwalls and/or levees in Findlay and/or Ottawa reach the design phase a Type II IEPR will be required due to the normal safety concerns with floodwalls and levees (e.g. outright failure, overtopping, breaching, proper maintenance).

Does the Project Have a Unique Construction Sequencing or a Reduced or Overlapping Design Construction Schedule? – The construction sequencing and schedule is unknown at this time (early in the project planning).

In-Kind Contributions. Hancock County, Ohio will act as the non-Federal sponsor for this study and as such is a signatory to the FCSA. The Northwest Ohio Flood Mitigation Partnership (NWOFP) will act as an overall advisor and partner in the study, particularly in terms of coordinating the study progress and efforts on the local and county levels. Study cost sharing will be 50% Federal and 50% Non-Federal with much of the non-Federal share provided as Work-In-Kind (WIK) efforts. In addition to in-kind services of labor provided by the non-Federal sponsor for meetings and other coordination efforts the products and analysis will be provided by the sponsor. All sponsor A/E provided documents and products will be subject to at least a District Quality Control (DQC) review and as needed an ATR and IEPR as described in Section 5 and 6 of this Review Plan.

Cultural Resource Studies: An architectural study survey plan and an archaeological predictive model have already been completed under the Section 205 studies by an A-E hired by the local sponsor. These documents are being currently being coordinated with the Ohio State Historic

Preservation Office for their concurrence as to their being the appropriate methodology for completing the Phase I and II investigations.

HTRW Studies: The non-Federal sponsor under contract with EDR, Inc. completed a report identifying containing several known HTRW sites within the defined project study areas. Additional site investigations under contract by the non-Federal sponsor (Phase I and possibly Phase II) are planned during the GI Feasibility Study.

Wetlands/Stream Delineation and Quality Assessments: A preliminary wetland/stream delineation report was completed in the Fall of 2009 by an A-E under contract by the local sponsor during the Section 205 studies. Additional information is still to be gathered relative to stream and wetland quality assessments according to Ohio EPA requirements.

Mussel Survey: Following coordination with the USFWS, a mussel survey of portions of the Blanchard River and tributaries was completed in the Fall of 2009 by the non-Federal sponsor. No Federally listed species were found, however, some state-listed species were determined to be present.

Hydraulics and Hydrology: A preliminary rainfall-runoff model for the watershed was developed by the Buffalo District during the Section 205 studies. At this time, the PDT is negotiating with the non-Federal sponsor to have the H&H modeling efforts including evaluation of preliminary alternatives performed by A/E contract at non-Federal sponsor cost, with significant input and review from the PDT. This sponsor effort will be carried through the Alternative Formulation Briefing (AFB).

Congressional Authorization. Considering the relative size and scope of a project that might result from this study, Congressional Project authorization would be required. Therefore all work efforts related to project schedules and costs will be fully coordinated and verified by the Cost Engineering Directory of Expertise at Walla Walla District.

4. DISTRICT QUALITY CONTROL (DQC)

Each product and associated appendices (as outlined below) will be subject to an Buffalo District in-house District Quality Control (DQC) review consistent with the Buffalo District regulation BR 1110-1-1, Biddability, Constructability, Operability and Environmental Design and Construction Review dated 31 March 2006, and associated District Quality Management guidance. Comments provided by District staff, not involved in preparation of the documents, will be entered in DrChecks and responded to appropriately by the PDT in Dr. Checks and by

revisions to the documents. Complete copies of all Buffalo District Dr. Checks comments and responses on the documents will be provided to the ATR Team described in Section 5.

- Feasibility Scoping Meeting Documentation
- Alternative Formulation Briefing Documentation
- Draft Feasibility Study Report and Draft Environmental Impact Statement Documentation
- Final Feasibility Study Report and Final Environmental Impact Statement Documentation

DQC of all products will, at a minimum, be accomplished by the following Branch Chiefs and if deemed necessary by senior (GS-12 or above) staff not directly involved in preparation of the products.

- Chief, Planning Branch
- Chief, Programs and Project Management Branch
- Chief, Project Management Team
- Chief, Hydraulics and Hydrology Engineering Team
- Chief, Design Branch
- Chief, Operations Branch
- Chief, Environmental Branch
- Office of Counsel
- Real Estate – CELRE

5. AGENCY TECHNICAL REVIEW (ATR)

General. ATR for decision documents as described in EC 1165-2-209 are managed by the appropriate Planning Center of Expertise (PCX) with appropriate consultation with the allied Communities of Practice such as engineering and real estate. The ATR shall ensure that the product is consistent with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and the results in a reasonably clear manner for the public and decision makers. Members of the ATR team will be from outside the home district. The ATR lead will be from outside the home MSC. The leader of the ATR team will participate in milestone conferences and the Civil Works Review Board (CWRB) to address review concerns.

Products for Review. The primary products to be reviewed as a result of the Feasibility Study are versions of the Feasibility Study Report and Environmental Impact Statement (EIS) which

ultimately could recommend a plan for Flood Risk Management for potential Congressional authorization.

- Feasibility Scoping Meeting Documentation
- Alternative Formulation Briefing Documentation
- Draft Feasibility Study Report and Draft Environmental Impact Statement Documentation
- Final Feasibility Study Report and Final Environmental Impact Statement Documentation

Supporting analysis and documents, including but not limited, to the following will also subject to Agency Technical Review

- Economic analysis and appendices
- Cost estimates
- Hydraulic analysis and appendices
- Design analysis and appendices
- Geotechnical analysis
- Supporting environmental analysis (cultural resources, HTRW, resource inventories, etc.)

Required ATR Team Expertise. The expertise/disciplines represented on the ATR team should reflect the significant disciplines involved in the planning effort. The PDT has determined that the expertise needed for review shall include Flood Damage Reduction, Environmental Planning and Analysis, Economic Analysis, Hydraulics and Hydrology, Civil Engineering, Geotechnical Engineering and Real Estate. The roster of the ATR and the expertise required is outlined in the table that follows.

Name, Credentials, Years of Experience	Organization	Contact Information	Discipline	Expertise Required
[REDACTED]	[REDACTED]	[REDACTED]	ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR's. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process.
[REDACTED]	[REDACTED]	[REDACTED]	Flood Damage Reduction Plan Formulation	Team member will be experienced with the civil works process, watershed level projections current flood damage reduction planning and policy guidance, and have experience in water resources planning for multipurpose projects, specifically integrating measures for

				flood risk management, ecosystem restoration, recreation, watersheds, and planning in a collaborative environment.
████	████	████████████████████	Environmental Planning and Analysis	Team member will be experienced in the NEPA process and analysis, and have a biological or environmental background that is familiar with the project area and ecosystem restoration.
████████	████	████████████████████	Economic Analysis	Team member will be experienced in civil works and related flood risk reduction projects and have a thorough understanding of HEC-FDA.
████	████	████████████████████	Hydraulics and Hydrology	Team member will be an expert in the field of hydrology & hydraulics and have a thorough understanding of open channel dynamics, enclosed channel systems, application of detention/retention basins, application of levees and flood walls, non-structural solutions involving flood warning systems and flood proofing, etc and/or computer modeling techniques that include expertise in HEC-RAS 4.0, HEC-HMS, and HEC-GeoHMS.
████	████	████████████████████	Civil Engineering; Project Design and Costs	Team member will be experienced in design and construction of both structural and non-structural flood risk management measures. In addition the Team member will be familiar cost estimating for similar civil works projects using MCACES.
████	████	████████████████████	Geotechnical Analysis	Team member will be experienced in geotechnical analysis of lacustrine soils, interpretation of soil boring analysis and the design of levees and floodwalls in relatively flat topographic landscapes. The Team Member will be well versed in ER 1110-2-1150 Engineering and Design for Civil Works Projects.
██████	████	████████████████████	Real Estate	Team member will be experienced in Real Estate Analysis and Acquisition procedures as they apply to USACE Flood Risk Management Projects consistent with ER 405-1-12 (Ch 12) Real Estate Handbook – Local Cooperation.
██████	██████	████████████████████	Cost Engineering	
██████	██████	████████████████████	Cultural Resources	

Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer’s comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical

Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review (Attachment 2) will be completed, based on work reviewed to date, for the AFB, draft report, and final report.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

Introduction - IEPR is conducted for decision documents if there is a vertical team decision (involving the district, MSC, PCX, and HQUSACE members) that the covered subject matter meets certain criteria (described in EC 1165-2-209 Civil Works Review Policy dated 31 Jan 2010) where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. IEPR is coordinated by the appropriate PCX and managed by an Outside Eligible Organization (OEO) external to the USACE. IEPR panels shall evaluate whether the interpretations of analysis and conclusions based on analysis are reasonable. To provide effective review, in terms of both usefulness of results and credibility, the review panels should be given the flexibility to bring important issues to the attention of decision makers; however, review panels should be instructed to not make a recommendation on whether a particular alternative should be implemented, as the Chief of Engineers is ultimately responsible for the final decision on a planning or reoperations study. IEPR panels will accomplish a concurrent review that covers the entire decision document and will address all the underlying engineering, economics, and environmental work, not just one aspect of the study. Whenever feasible and appropriate, the office producing the document shall make the draft decision document available to the public for comment at the same time it is submitted for review (or during the review process) and sponsor a public meeting where oral presentations on scientific issues can be made to the reviewers by interested members of the public. An IEPR panel or OEO representative will participate in the CWRB.

Decision on IEPR - The PDT for the Blanchard River Watershed Study has determined, consistent with Section 2034 of the Water Resources Development Act of 2007, and implementing guidance contained in EC 1165-2-209, that a Type I IEPR is warranted for the decision document to be completed for the study (Feasibility Report and Environmental Impact Statement). This study has met at least three of the threshold criteria or factors for requiring a Type I IEPR as described below (note: meeting any one threshold criteria mandates conducting a Type I IEPR).

- Significant Threat to Human Life - The very nature of the serious flooding problem being investigated in the Blanchard River Watershed and historical flooding in the communities of Findlay and Ottawa, where life has been lost in previous floods, meet the threshold criteria for this factor.
- Estimated Project Cost > \$45,000,000 - Preliminary cost estimates for alternatives considered in the Section 205 studies at Findlay and Ottawa indicate that any comprehensive flood risk management solutions (projects) in the watershed would exceed \$100,000,000.
- Environmental Impact Statement – The PDT has determined based on the potential for significant environmental impacts; the public and agency interest in potential solutions; and, the potential for controversy concerning the alternatives to be considered that it is appropriate to prepare a draft and final environmental impact statement for the Blanchard River study.

Products to Undergo Type I IEPR - The primary products to be reviewed as a result of the Feasibility Study are the Feasibility Study Report and Environmental Impact Statement (EIS). Both the draft and final reports and EIS will be submitted for Type I IEPR. All supporting documentation (e.g. technical appendices) to the feasibility study report and the EIS will also undergo Type I IEPR. At this time, it is not envisioned that Type I IEPR will be required for the Feasibility Scoping Meeting (FSM) and Alternative Formulation Briefing (AFB) documentation.

Required Type I IEPR Panel Expertise. The expertise/disciplines represented on the IEPR team should reflect the significant disciplines involved in the planning effort. The PDT has determined that the expertise needed for review shall include Flood Damage Reduction; Environmental Planning and Analysis; Economic Analysis; Hydraulics and Hydrology; and, Civil Engineering in the areas of design and Cost. This expertise is based on information obtained from the PMP and the factors affecting the scope and level of review outlined in Section 3 of this review plan and is illustrated in the table which follows.

IEPR Panel Members/Disciplines	Expertise Required
Flood Damage Reduction Plan Formulation	Panel member will be experienced with the civil works process, watershed level projections current flood damage reduction planning and policy guidance, and have experience in water resources planning for multipurpose projects, specifically integrating measures for flood risk management, ecosystem restoration, recreation, watersheds, and planning in a collaborative environment.
Environmental Planning and Analysis	Panel member will be experienced in the NEPA process and analysis, and have a biological or environmental background that is familiar with the project area and ecosystem restoration.
Economic Analysis	Panel member will be experienced in civil works and related flood risk reduction projects and have a thorough understanding of HEC-FDA.
Hydraulics and Hydrology	Panel member will be an expert in the field of hydrology & hydraulics and have a thorough understanding of open channel dynamics, enclosed channel systems, application of detention/retention basins, application of levees and flood walls, non-structural solutions involving flood warning systems and flood proofing, etc and/or computer modeling techniques that include expertise in HEC-RAS 4.0, HEC-HMS, and HEC-GeoHMS.
Civil Engineering; Project Design and Costs	Panel member will be experienced in design and construction of both structural and non-structural flood risk management measures. In addition the Team member will be familiar cost estimating for similar civil works projects using MCACES.

Documentation of Type I IEPR - The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

Requests for Type I IEPR from the Head of a Federal or State Agency – None received to date.

Type II IEPR - Type II IEPR is essentially a Safety Assurance Review (SAR) of the design and construction activities applicable to a project. Although any project for the Blanchard River Watershed is in the early stages, it is more than likely than any project recommended would involve the design and construction of levees and/or floodwalls. Such structures would likely give local residents a feeling of relative safety during periods of high water on the Blanchard River. In such situations, failure of the structures could significantly endanger human life and safety. Therefore, it is concluded that a Type II Safety Assurance Review will be conducted during the design and construction of any project for the Blanchard River. In accordance with EC 1165-2-209, the Safety Assurance Review will be addressed during the planning of this project, in particular during the Type I IEPR.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All **decision documents** will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the Chief of Engineers. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

All **decision documents** shall be coordinated with the Cost Engineering Directory of Expertise (DX), located in the Walla Walla District. The DX, or in some circumstances regional cost personnel that are pre-certified by the DX, will conduct the cost ATR. The DX will provide certification of the final total project cost.

9. MODEL CERTIFICATION AND APPROVAL

Planning Models - The following planning models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification/Approval Status
HEC-FDA 1.2.5a	The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans along the Blanchard River near the City of Findlay to aid in the selection of a recommended plan to manage flood risk.	Certified
IWR-PLAN	The Institute for Water Resources Planning Suite (IWR-PLAN) is a decision support software package that is designed to assist with the formulation and comparison of alternative plans. While IWR-PLAN was initially developed to assist with environmental restoration and watershed planning studies, the program can be useful in planning studies addressing a wide variety of problems. IWRPLAN can assist with plan formulation by combining solutions to planning problems and calculating the additive effects of each combination, or "plan." IWR-PLAN can assist with plan comparison by conducting cost effectiveness and incremental cost analyses, identifying the plans which are the best financial investments and displaying the effects of each on a range of decision variables.	Certified
HEP (101 ESM 5) HSI	The Habitat Evaluation Procedures (HEP) is a habitat based approach for assessing environmental impacts of proposed water and land resource development projects. The method can be used to document the quality and quantity of available habitat for selected fish and wildlife species. Habitat Suitability Indices (HSI's) will be calculated for representative species of birds, mammals, and/or fish that are likely to use the emergent, scrub-shrub, or forested riparian	Approved Methodology Individual HSI Models will be coordinated with ECO-PCX for approval once

	wetland areas or stream areas that are being investigated as part of the ecosystem restoration and mitigation plans along the Blanchard River. A list of species has been created and will be narrowed down and finalized. After the list of HSI models is finalized, it will be coordinated with the ECO-PCX, to receive approval. election of species are made, the The HSI models will then be used in the HEP procedure to quantify the impact of proposed or anticipated land and water use changes on fish and wildlife habitat and . to evaluate ecosystem restoration and mitigation plans along the Blanchard River.	identified
Amph IBI	The Amphibian IBI (Amph IBI) for Ohio wetlands uses the amphibian communities of wetlands as indicators of overall wetland condition. The Index consists of five metrics which correlate significantly with the original disturbance gradient and provides a tool for determining wetland condition.	Approval required
QHEI	The Qualitative Habitat Evaluation Index (QHEI) is an index of macro-habitat quality for streams that have a drainage area larger than 1 mi ² or 259 hectares. This index is designed to provide a measure of habitat quality that generally corresponds to those physical factors that affect fish communities and which are generally important to other aquatic life (e.g . invertebrates). QHEI is composed of six metrics which take in account variables such as bottom substrate, channel morphology, riparian cover, and other modifications to the stretch. A QHEI measurement can have a maximum score of 100 with scores less than 30 identifying a very poor quality stream and scores of 70 or higher characterizing excellent quality streams. This index will be one of the metrics used to characterize existing conditions and evaluate ecosystem restoration and mitigation plans along the Blanchard River.	Currently under review for Approval by ECO-PCX
HHEI v. 2.3	The Headwater Habitat Evaluation Index (HHEI) was developed using methods similar to those used to develop the QHEI. HHEI uses three habitat variables (channel substrate composition, bankfull width, and maximum pool depth) for streams that have a drainage area of less than 1 mi ² or 259 hectares and maximum pool depths less than 40 cm to distinguish between three types of primary headwater habitat (PHWH) streams. These three classes of streams include: Class I PHWH streams (ephemeral streams with channels that are normally dry, with little or no aquatic life); Class II PHWH streams (intermittent/perennial streams found to have a moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis); Class III PHWH streams (perennial streams found to have a diverse community of native fauna adapted to cool-cold perennial flowing water). This index will be one of the metrics used to characterize existing conditions and evaluate ecosystem restoration and mitigation plans along the Blanchard River.	Approval Required
ORAM v. 5.0	The Ohio Rapid Assessment Method for Wetlands is a rapid assessment method developed by Ohio EPA to distinguish between three different categories of wetland that relate to their level of function and quality. These three broad categories of wetlands include: Category 1 wetlands - low quality wetlands that support minimal	Approval Required

	<p>wildlife habitat, and minimal hydrological and recreational functions and do not provide critical habitat for threatened and endangered species or contain rare, threatened or endangered species;</p> <p>Category 2 wetlands - medium quality wetlands that support moderate wildlife habitat, or hydrological or recreational functions and are dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species. Category 2 wetlands also include a sub category of wetlands that are degraded but have a reasonable potential for reestablishing lost wetland functions;</p> <p>Category 3 wetlands are high quality wetlands that have superior habitat, or superior hydrological or recreational functions. They are typified by high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide.</p> <p>This assessment method will be one of the metrics used to characterize existing conditions and evaluate ecosystem restoration and mitigation plans along the Blanchard River.</p>	
VIBI	<p>The Vegetative Index of Biotic Integrity (VIBI) is a wetland biological assessment method that uses vascular plants as an indicator species to determine the function and quality of the wetland. It is a multimetric index comprised of 10 metrics with a maximum score of 100 and a minimum score of 0. This is the definitive method used by Ohio EPA to determine the category of a particular wetland(Category 1, 2 or 3) as described above in the ORAM section and is Ohio EPA's preferred metric for monitoring vegetation at mitigation wetlands.</p>	Approval Required
Ohio FQAI	<p>The Ohio Floristic Quality Assessment Index (FAQI) is an evaluation procedure that uses measures of ecological conservatism (expressed numerically as a coefficient of conservatism or C of C) and richness of the native plant community to derive a score that is an estimate of habitat quality. This assessment method will be one of the metrics used to characterize existing conditions and evaluate ecosystem restoration and mitigation plans along the Blanchard River.</p>	Currently under review for Approval by ECO-PCX

Note: The Ecosystem Restoration Planning Center of Expertise (ECO-PCX) has responsibility for approving ecosystem output methodologies for use in ecosystem restoration planning and mitigation planning. The Ecosystem PCX will need to certify or approve for use each regionally modified version of these methodologies and individual models or guidebooks used in the application of these methods. The PDT will coordinate with the Ecosystem PCX during the study to identify any additional appropriate models and certification approval requirements.

Engineering Models. The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification/Approval Status
HEC-RAS 4.0	The Hydrologic Engineering Center’s River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for both steady and unsteady flow analysis to evaluate the future without- and with-project conditions along the Blanchard River and its tributaries.	Certified
HEC-HMS 3.5	The Hydrologic Engineering Center’s Hydraulic Modeling System is designed to simulate the precipitation-runoff processes of dendritic watershed systems. This model will be used for simulating various rainfall events that will be used to develop conceptual design alternatives.	Certified
HEC-GeoHMS 5.0	The Geospatial Hydrologic Modeling Extension (HEC-GeoHMS) is a software package for use with the ArcView Geographic Information System. GeoHMS uses ArcView and Spatial Analyst to develop a number of hydrologic modeling inputs. Analyzing digital terrain information, HEC-GeoHMS transforms the drainage paths and watershed boundaries into a hydrologic data structure that represents the watershed response to precipitation. In addition to the hydrologic data structure, capabilities include the development of: grid-based data for linear quasi-distributed runoff transformation (ModClark), the HEC-HMS basin model, physical watershed and stream characteristics, and background map file. The hydrologic results from HEC-GeoHMS will be imported into the HEC-HMS model to aid storm event simulating.	Certified

10. REVIEW SCHEDULES AND COSTS

ATR Schedule and Cost – The following Table contains the initial estimates for the ATR schedule and cost as determined by the Buffalo District PDT. It is subject to further coordination and negotiation with the vertical team, ATR Team, and the relevant Planning Centers of Expertise.

Item to Undergo ATR	Schedule	Estimated Cost (by PDT) for ATR
FSM Documentation	Aug-Oct 2011	\$ 55,000
AFB Documentation	Apr-Jul 2012	\$ 60,000
Draft Report and DEIS	Feb-Apr 2013	\$ 40,000
Final Report and FEIS	Mar 2014	\$ 40,000

Note: The estimated ATR cost does not include in-house District costs associated with the ATR

IEPR Schedule and Cost. The Flood Risk Management PCX will coordinate the IEPR for the Draft Report. The Draft report will be reviewed after the ATR is complete and will be conducted concurrently with agency review of the draft report and EIS. The following Table contains current IEPR costs as estimated by the PDT

Item to Undergo IEPR	Schedule	Estimated Cost (by PDT) for IEPR
FSM Documentation	n/a	No IEPR
AFB Documentation	n/a	No IEPR
Draft Report and DEIS	Jan-May 2014	\$200,000

Note: The estimated IEPR cost does not include in-house District costs associated with the IEPR

Model Certification/Approval Schedule and Cost. The following planning models being used on this study will have to be certified/approved for use in the study. The following table estimates schedule and time for model certifications.

Model to be Certified	Schedule	Estimated Cost for Model Certification
QHEI	TBD	TBD
HHEI v. 2.3	TBD	TBD
ORAM v. 5.0	TBD	TBD

Note: The estimated model certification cost does not include in-house District costs associated with certification

11. PUBLIC PARTICIPATION

The public involvement process will include public meetings throughout the study period, and study briefings for interested and affected parties and agencies. Several agency coordination meetings are also anticipated. Detailed information on the study will be posted on the public webpage. This information will include public meeting presentation, technical information and reports, study schedule, and other pertinent information about the study. Additional project information will be posted to an internal project webpage for USACE use.

The non-Federal sponsor (Hancock County) is expected to be an active participant in the public involvement program.

Upwards of a dozen public meetings and information sessions have been held during the Section 205 studies for Findlay and Ottawa. At least one formal public meeting will be conducted by the USACE after release of the draft Feasibility Study Report and draft Environmental Impact Statement for review under NEPA.

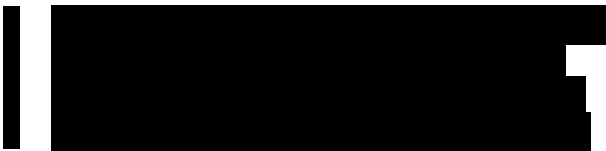
At this time there are no plans for the public, including scientific and professional societies to nominate peer reviewers. Beyond the formal NEPA process, the final decision document, associated review reports and USCAE responses to IEPR comments will be posted on the USACE public website for the project.

12. REVIEW PLAN APPROVAL AND UPDATES

The Great Lakes and Ohio River Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this review plan can be directed to the following points of contact:



blanchard@usace.army.mil

Buffalo District, USACE Toledo Project Office 419-726-9121

ATR TEAM

Refer to the Table on Page 14-15 for the ATR Team Roster

			Email
TBD	ATR Manager/Plan		
TBD	Civil Design		
TBD	Environmental Resources		
TBD	Hydrology/Reservoir		
TBD	Hydraulics		
TBD	Economics		
TBD	Cost Engineering 1		
TBD	Real Estate/Lands		
TBD	Cultural Resources		
TBD	Geotechnical Engineering		

VERTICAL TEAM

Name	Location	Phone	Email
	FRM-PCX		
	CELRD, Cincinnati, OH		
	CELRD, Cincinnati, OH		
	HQUSACE, Washington, DC		
	OEO Point of Contact		

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Feasibility Report and Environmental Impact Statement for the Blanchard River, Ohio Watershed Study. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

Name
ATR Team Leader
Office Symbol/Company

Date

SIGNATURE

Name
Project Manager
Office Symbol

Date

SIGNATURE

Name
Architect Engineer Project Manager¹
Company, location

Date

SIGNATURE

Name
Review Management Office Representative
Office Symbol

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE

Name
Chief, Engineering Division
Office Symbol

Date

SIGNATURE

Name
Chief, Planning Division
Office Symbol

Date

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
CWRB	Civil Works Review Board	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control	OEO	Outside Eligible Organization
DX	Directory of Expertise	OSE	Other Social Effects
EA	Environmental Assessment	PCX	Planning Center of Expertise
EC	Engineer Circular	PDT	Project Delivery Team
EIS	Environmental Impact Statement	PAC	Post Authorization Change
EO	Executive Order	PMP	Project Management Plan
ER	Ecosystem Restoration	PL	Public Law
FDR	Flood Damage Reduction	QMP	Quality Management Plan
FEMA	Federal Emergency Management Agency	QA	Quality Assurance
FRM	Flood Risk Management	QC	Quality Control
FSM	Feasibility Scoping Meeting	RED	Regional Economic Development
GRR	General Reevaluation Report	RTS	Regional Technical Specialist
HQUSACE	Headquarters, U.S. Army Corps of Engineers	USACE	U.S. Army Corps of Engineers
IEPR	Independent External Peer Review	WRDA	Water Resources Development Act
ITR	Independent Technical Review		
LRR	Limited Reevaluation Report		
MSC	Major Subordinate Command		

MEMORANDUM FOR Philip Berkeley, Buffalo District

SUBJECT: Blanchard River Watershed, Ohio, Feasibility Study Review Plan

1. The Flood Risk Management Planning Center of Expertise (FRM-PCX) has reviewed the Review Plan (RP) 19 July 2011 for the subject study and concurs that the RP satisfies peer review policy requirements outlined in Engineering Circular (EC) 1165-2-209 Civil Works Review Policy, dated 31 January 2010.
2. The review was performed by [REDACTED] All comments have been resolved.
3. The FRM-PCX recommends the RP for approval by the Major Subordinate Command (MSC). Upon approval of the RP, please provide a copy of the approved RP, a copy of the MSC Commander's approval memorandum, and the link to where the RP is posted on the District website to [REDACTED] FRM-PCX National Program Manager [REDACTED] and [REDACTED] FRM-PCX Regional Manager for Great Lakes and Ohio River Division [REDACTED]
4. Thank you for the opportunity to assist in the preparation of the RP. Please coordinate the Agency Technical Review, Independent External Peer Review, and Model Certification efforts defined in the review plan with [REDACTED]

[REDACTED]
Program Manager, FRM-PCX



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER
CORPS OF ENGINEERS
550 MAIN ST.
CINCINNATI, OH 45202

CELRD-PD

24 January 2012

MEMORANDUM FOR COMMANDER, Buffalo District

SUBJECT: Review Plan for the Blanchard River Watershed, Ohio Feasibility Report and Environmental Impact Statement

1. The attached Review Plan (RP) for the Blanchard River Watershed, Ohio Feasibility Report and Environmental Impact Statement is presented to the Great Lakes and Ohio River Division for approval in accordance with EC 1165-2-209 "Civil Works Review" dated 31 January 2010.
2. The Blanchard River Watershed, a portion of the Maumee River Watershed, is located within the counties of Putnam, Hancock, Seneca, Allen, Hardin and Wyandote in northwest, Ohio. This Blanchard River Watershed study is being conducted under the general authority provided in Section 441 of the Water Resources Development Act (WRDA) of 1999, as amended. This study, although primarily concerned with flood risk management efforts for the communities of Findlay and Ottawa, will also investigate flooding concerns in other portions of the watershed. In addition, numerous opportunities may exist to restore historical wetlands in the watershed and will also be investigated in the study. In so far as possible, flood risk management and environmental restoration measures will be combined into alternative plans for evaluation and consideration in the study. Measures to be investigated for flood risk management include upstream impoundments, levees, floodwalls, diversion channels, channelization and non-structural flood proofing actions. For environmental restoration purposes, the primary measures to be considered would be converting farmlands and unused areas back into wetlands.
3. The Flood Risk Management Center of Expertise has reviewed the attached Review Plan for technical sufficiency and policy compliance and provided its endorsement via letter (attached). The Buffalo District Chief of Technical Services Division (a.k.a. Chief of Engineering) has assessed the potential life and safety issues relative to any potential FRM project in the Blanchard River Watershed and has concluded that a Type I IEPR with consideration of SAR Review Factors is appropriate during the Planning stages of this study. In addition, based on current information, he has determined that a Type II IEPR and Safety Assurance Review would be appropriate and should be conducted during the design and construction phases of the project. The delegate for the Commander of the Great Lakes and Ohio Division assigned for the approval of MSC Review Plans concurs with the assessment of the aforementioned recommendation by the Buffalo district Chief of Technical Services Division that a the requirement of a Type I and Type II (SAR) for this project exist.

4. It is anticipated that during the course of this study a number of planning models will need to be certified for use (QHEI, ORAM). None of these models; however, are unusual and their use is not expected to be precedent setting. All uncertified planning models will need to undergo the model certification process as outlined in EC 1105-2-412 "Assuring Quality of Planning Models".
5. The District is requested to post the RP to its web site and provide the link to the Flood Risk Management Center of Expertise for their files. Prior to posting, the names of all individuals identified in the RP should be removed.
6. If you have any questions or need additional information, please contact [REDACTED] CELRD-PDS-P, at [REDACTED]

2 Encls

